

Exercise 2 - Means-end Analysis

System objectives:

The system objective is to transfer heat from the reactor coolant system (RCS) to the steam generators (SG) via the coolant. It is then transferred to a secondary system where it is converted into electrical energy.

Components that realize different functions:

- **SG:**
 - The steam generators are used to produce steam by using the heat from the RCS.
 - The steam is used to drive a turbine.
- **RCP:**
 - The reactor coolant pump (RCP) is used to circulate the reactor coolant. There is 3 of them.
 - It is used to transport heat to the SG from the reactor.
 - Circulation and heat removal under abnormal conditions
- **PRZ:**
 - Pressurizer which is used for pressure control
 - Provides surge volume for RCS contraction and expansion due to temperature and pressure changes.
 - Overpressure protection in PORV(Power operated relief valve) and safety valves. These can be used to relieve pressure.
 - The relief tank (PRT) receives the discharged steam from the PORV and safeties. It is used for overpressure protection.
 - Also uses spray lines connected to loop A and B cold legs which prevent steam buildup and leakage.
 - The PRZ also consists of heaters. Used if more pressure needed?

